AMENDMENTS TO THE CLAIMS

This listing of changes will replace all prior versions, and listings, of claims in the specification.
Listing of Claims:

1. (currently amended) An infant movement analysis system comprising:

an imaging device that is capable of photographing ~~photographs~~ an infant to output a motion picture of the infant as digital data; and

an analyzing device that is capable of determining ~~determines~~ movements of four limbs of the infant from the motion picture of the infant who is photographed by said imaging device and identifying~~identifies~~ a disease and/or a symptom of the infant from correlativity of movements of a plurality of arms and/or legs out of the four limbs

wherein said analyzing device includes: a feature image extracting means for extracting once every one frame or plural frames, from an image of the infant, marker images of markers attached to the four limbs of the infant or feature images of the four limbs of the infant ~~once every one frame or plural frames~~;

a limb movement determining means for determining the movement of each of the limbs based on positions of the marker images or the feature images which are extracted in time series by said feature image extracting means;

a movement analyzing means for extracting from the movements of the four limbs determined by said limb movement determining means at least one of right-left synchronism of the arms or the legs, right-left symmetry of the arms or the legs, and~~/or~~ coordination among the ~~plural~~ limbs, ~~in the movements of the four limbs determined by said limb movement determining means~~; and

a judging means for judging at least one of existence/nonexistence of a disease, ~~or~~ a value of possibility of a disease and~~/or~~ a symptom of the infant based on at least one of degree of the right-left synchronism, the right-left symmetry, and~~/or~~ the coordination, which are extracted by said movement analyzing means

wherein said movement analyzing means is capable of determining ~~determines~~

existence/nonexistence of the coordination among the plural limbs, or a degree of the coordination among the plural limbs, using as index one factor or a plurality of factors selected from:

a movement start order and movement start accelerations of the markers when the markers start moving from a stop state;

a movement stop order and movement stop decelerations of the markers when the markers stop from the moving state;

at least one of a trajectory of a first midpoint of a straight line connecting a marker attached to a right arm and a marker attached to a right leg, speed of the first midpoint, acceleration of the first midpoint, and deceleration of the first midpoint;

at least one of a trajectory of a second midpoint of a straight line connecting a marker attached to a left arm and a marker attached to a left leg, speed of the second midpoint, acceleration of the second midpoint, and deceleration of the second midpoint;

at least one of a trajectory of a third midpoint of a straight line connecting ~~two~~ a markers attached to a left arm and a marker attached to a right arm, speed of the third midpoint, acceleration of the third midpoint, and deceleration of the third midpoint;

at least one of a trajectory of a fourth midpoint of a straight line connecting ~~two~~ a markers attached to left leg and a marker attached to a right leg, speed of the fourth midpoint, acceleration of the fourth midpoint, and deceleration of the fourth midpoint;

at least one of a trajectory of a fifth midpoint of a straight line connecting ~~two~~ a markers attached to the left arm and a marker attached to the right leg, speed of the fifth midpoint, acceleration of the fifth midpoint, and deceleration of the fifth midpoint;

at least one of a trajectory of a sixth midpoint of a straight line connecting ~~two~~ a markers attached to the left leg and a marker attached to the right arm, speed of the sixth midpoint, acceleration of the sixth midpoint, and deceleration of the sixth midpoint; and

at least one of a trajectory of a gravity center of a plane or a solid including three ~~or four~~ markers attached to three ~~limbs or four limbs~~ out of the four limbs or four markers attached to the four limbs, speed of the gravity center, acceleration of the gravity center, and deceleration of

the gravity center.

2. (canceled)

3. (currently amended) The infant movement analysis system according to claim 1,

wherein said feature image extracting means is capable of extracting ~~extracts~~ a marker image of a reference point marker attached to at least one of head, breast, abdomen, and lumbar region other than the four limbs of the infant, and wherein said limit movement determining means is capable of determining ~~determines~~ the movement of each of the limbs based on an absolute position of the marker image of each of the limbs in the image and/or a relative position of the marker image of each of the limbs to a position of the marker image of the reference point marker in the image.

4. (canceled)

5. (canceled)

6. (currently amended) The infant movement analysis system according to claim 1,wherein said feature image extracting means is capable of extracting marker images of ~~the~~ markers attached to the four limbs of the infant that are coated with a phosphor or contain a substance that emits light when receiving ultraviolet ~~or a phosphor~~.

7. (currently amended) An infant movement analysis system comprising:

a database that stores movement data indicating histories of movements of four limbs of an infant, wherein the movements were ~~being~~ determined from a motion picture of the infant photographed by an imaging device that photographed ~~photographs~~ an infant ~~to~~ and output a motion picture of the infant as digital data; and

an analyzing device that is capable of determining ~~determines~~ movements of four limbs of the infant from the motion picture of the infant who is photographed by said imaging device and identifying~~identifies~~ a disease and/or a symptom of the infant from correlativity of movements of a plurality of arms and/or legs out of the four limbs

wherein said analyzing device includes: a feature image extracting means for extracting once every one frame or plural frames, from an image of the infant, marker images of markers attached to the four limbs of the infant or feature images of the four limbs of the infant ~~once every one frame or plural frames~~;

a limb movement determining means for determining the movement of each of the limbs based on positions of the marker images or the feature images which are extracted in time series by said feature image extracting means;

a movement analyzing means for extracting from the movements of the four limbs determined by said limb movement determining means at least one of right-left synchronism of the arms or the legs, right-left symmetry of the arms or the legs, and~~/or~~ coordination among the ~~plural~~ limbs, ~~in the movements of the four limbs determined by said limb movement determining means~~; and

a judging means for judging at least one of existence/nonexistence of a disease, ~~or~~ a value of possibility of a disease and~~/or~~ a symptom of the infant based on at least one of degree of the right-left synchronism, the right-left symmetry, and~~/or~~ the coordination, which are extracted by said movement analyzing means

wherein said movement analyzing means is capable of determining ~~determines~~ existence/nonexistence of the coordination among the plural limbs, or a degree of the coordination among the plural limbs, using as index one factor or a plurality of factors selected from:

a movement start order and movement start accelerations of the markers when the markers start moving from a stop state;

a movement stop order and movement stop decelerations of the markers when the markers stop from the moving state;

at least one of a trajectory of a first midpoint of a straight line connecting a marker attached to a right arm and a marker attached to a right leg, speed of the first midpoint, acceleration of the first midpoint, and deceleration of the first midpoint;

at least one of a trajectory of a second midpoint of a straight line connecting a marker attached to a left arm and a marker attached to a left leg, speed of the second midpoint, acceleration of the second midpoint, and deceleration of the second midpoint;

at least one of a trajectory of a third midpoint of a straight line connecting ~~two~~ a markers attached to a left arm and a marker attached to a right arm, speed of the third midpoint, acceleration of the third midpoint, and deceleration of the third midpoint;

at least one of a trajectory of a fourth midpoint of a straight line connecting ~~two~~ a markers attached to left leg and a marker attached to a right leg, speed of the fourth midpoint, acceleration of the fourth midpoint, and deceleration of the fourth midpoint;

at least one of a trajectory of a fifth midpoint of a straight line connecting ~~two~~ a markers attached to the left arm and a marker attached to the right leg, speed of the fifth midpoint, acceleration of the fifth midpoint, and deceleration of the fifth midpoint;

at least one of a trajectory of a sixth midpoint of a straight line connecting ~~two~~ a markers attached to the left leg and a marker attached to the right arm, speed of the sixth midpoint, acceleration of the sixth midpoint, and deceleration of the sixth midpoint; and

at least one of a trajectory of a gravity center of a plane or a solid including three ~~or four~~ markers attached to three ~~limbs or four limbs~~ out of the four limbs or four markers attached to the four limbs, speed of the gravity center, acceleration of the gravity center, and deceleration of the gravity center.

8. (canceled)

9. (previously presented) The infant movement analysis system according to claim 7, wherein said feature image extracting means extracts a marker image of a reference point marker attached to at least one of head, breast, abdomen, and lumbar region other than the

four limbs of the infant, and wherein said limb movement determining means determines the movement of each of the limbs based on an absolute position of the marker image of each of the limbs and/or a relative position of the marker image of each of the limbs to a position of the marker image of the reference point marker in the image.

10. (canceled)

11. (canceled)

12. (withdrawn) An infant movement analysis system comprising:

a database that stores a plurality of movement data indicating histories of movements of four limbs of a plurality of infants, the movements being determined from motion pictures of the plural infants photographed by an imaging device that photographs an infant to output a motion picture of the infant as digital data; and

an analyzing device that judges whether or not an infant newly photographed has a disease or not, according to a judgment condition which is set based on distribution of movement data of infants judged as normal infants with respect to the disease and/or distribution of movement data of infants judged as having the disease, out of the plural movement data stored in said database.

13. (withdrawn) An infant movement analysis method comprising the steps of: photographing an infant and converting a motion picture of the infant to digital data; determining movements of four limbs of the infant from the motion picture of the photographed infant; and identifying a disease and/or a symptom of the infant from correlativity of movements of a plurality of arms and/or legs out of the four limbs.

14. (withdrawn) An infant movement analysis method comprising the steps of: by using a database that stores a plurality of movement data indicating histories of movements of

four limbs of a plurality of infants, which are determined from motion pictures of the plural infants photographed by an imaging device that photographs an infant to output a motion picture of the infant as digital data, generating a judgment condition based on distribution of movement data of infants judged as normal with respect to a disease and/or distribution of movement data of infants judged as having the disease, out of the plural movement data stored in the database; and judging, according to the generated judgment condition, whether or not a newly photographed infant has the disease.

15. (canceled)

16. (withdrawn) An infant movement analysis method comprising the steps of: photographing an infant and converting a motion picture of the infant to digital data; determining a movement of a marker attached to at least one of four is limbs of the infant, from the motion picture of the photographed infant; and identifying a disease and/or a symptom of the infant from the determined movement of the marker.